

CLAIMS

What is claimed is:

- 1 1. An RF apparatus formed using an integrated circuit comprising:
2 power amplifier circuitry formed using the integrated circuit;
3 circuitry for generating a power ramp profile to control the output power of the RF power
4 amplifier.
- 1 2. The RF apparatus of claim 1, further comprising a digital interface formed using
2 the integrated circuit for receiving power control data.
- 1 3. The RF apparatus of claim 2, wherein the digital interface comprises a serial
2 interface.
- 1 4. The RF apparatus of claim 1, further comprising one or more sensors formed
2 using the integrated circuit.
- 1 5. The RF apparatus of claim 4, wherein one or more ramp profiles are generated to
2 power the power amplifier circuitry based on information from one or more sensors.
- 1 6. The RF apparatus of claim 5, wherein at least one of the sensors senses the
2 temperature of the RF power amplifier.

1 7. The RF apparatus of claim 5, wherein at least one of the sensors senses the battery
2 voltage supplying power to the RF power amplifier.

1 8. The RF apparatus of claim 4, wherein one or more ramp profiles are generated to
2 power the power amplifier circuitry based on information from one or more sensors and
3 from an external control signal.

1 9. The RF apparatus of claim 1, further comprising a digital signal processor (DSP)
2 formed using the integrated circuit.

1 10. The RF apparatus of claim 9, wherein the DSP controls the output power of the
2 power amplifier circuitry by selecting one or more of the ramp profiles.

1 11. The RF apparatus of claim 10, wherein the DSP generates one or more ramp
2 profiles based on an external control signal.

1 12. The RF apparatus of claim 10, wherein the DSP generates one or more ramp
2 profiles based on an external control signal and further based on information from one or
3 more sensors formed on the integrated circuit.

1 13. The RF apparatus of claim 9, further comprising a serial interface using the
2 integrated circuit for downloading ramp profiles onto the integrated circuit.

1 14. The RF apparatus of claim 9, further comprising a circuit for generating a clock
2 signal for use by the DSP.

1 15. The RF apparatus of claim 14, wherein the RF power amplifier receives an RF
2 input signal, and wherein the clock signal is generated by dividing the RF input signal.

1 16. The RF apparatus of claim 1, further comprising a digital to analog converter
2 circuit formed using the integrated circuit for generating a power control signal based on
3 generated ramp profiles.

1 17. The RF apparatus of claim 1, further comprising memory formed using the
2 integrated circuit, wherein the memory stores a plurality of ramp profiles for controlling
3 the output power of the power amplifier.

1 18. A method of amplifying RF signals comprising:
2 providing an RF power amplifier formed on an integrated circuit;
3 storing a plurality of ramp profiles in the integrated circuit; and
4 selecting one of the ramp profiles to control the output power of the RF power amplifier.

1 19. The method of claim 18, wherein the ramp profile is selected based on a received
2 power control signal.

1 20. The method of claim 18, further comprising sensing one or more properties
2 related to the integrated circuit.

1 21. The method of claim 20, wherein one of the one or more properties sensed is the
2 temperature of the integrated circuit.

1 22. The method of claim 20, wherein one of the one or more properties sensed is the
2 voltage of a battery.

1 23. The method of claim 20, wherein the ramp profile is selected based on a received
2 power control signal and a sensed property.

1 24. The method of claim 18, further comprising using the selected ramp profile to
2 generate a power control signal for controlling the output power of the RF power
3 amplifier.

1 25. The method of claim 24, further comprising providing a digital to analog
2 converter for generating the power control signal.

1 26. The method of claim 18, further comprising selecting one of the ramp profiles
2 using a digital signal processor.

1 27. The method of claim 26, further comprising generating a clock signal for use by
2 the digital signal processor.

1 28. The method of claim 27, further comprising dividing an RF input signal to
2 generate the clock signal.

1 29. A method of controlling a wireless communication device comprising:
2 providing a baseband controller;
3 providing an integrated circuit having an RF power amplifier and memory formed using
4 the integrated circuit;
5 storing a plurality of ramp profiles in the memory formed using the integrated circuit;
6 sending a power control signal from the baseband controller to the integrated circuit;
7 selecting one of the plurality of ramp profiles based on the power control signal received
8 from the baseband controller; and
9 using the selected ramp profile to control the output power of the RF power amplifier.

1 30. The method of claim 29, further comprising providing a digital interface between
2 the baseband controller and the integrated circuit.

1 31. The method of claim 29, further comprising providing a serial interface between
2 the baseband controller and the integrated circuit.

1 32. The method of claim 29, further comprising:
2 sensing the temperature of the integrated circuit; and
3 selecting the ramp profile based on the power control signal and the sensed temperature.

1 33. The method of claim 29, further comprising:
2 sensing the battery voltage of the wireless communication device; and

3 selecting the ramp profile based on the power control signal and the sensed battery
4 voltage.

1 34. The method of claim 29, further comprising forming a digital signal processor
2 using the integrated circuit.

1 35. The method of claim 34, wherein the digital signal processor selects one of the
2 plurality of ramp profiles.

1 36. The method of claim 34, further comprising downloading ramp profiles to the
2 digital signal processor.

1 37. The method of claim 34, further comprising providing a digital to analog
2 converter using the integrated circuit for generating a control signal based on the selected
3 ramp profile.

1 38. An RF power amplifier module comprising:
2 power amplifier circuitry formed using a first integrated circuit;
3 control circuitry formed using a second integrated circuit; and
4 memory formed using one of the first and second integrated circuits, wherein a plurality
5 of ramp profiles for controlling the output power of the power amplifier circuitry
6 are stored in the memory.

1 39. The RF power amplifier module of claim 38, wherein the first integrated circuit is
2 formed using a GaAs substrate.

1 40. The RF power amplifier module of claim 38, wherein the first integrated circuit is
2 formed using a silicon substrate.

1 41. The RF power amplifier module of claim 38, further comprising a printed circuit
2 board, wherein the first and second integrated circuits are mounted to the printed circuit
3 board.

1 42. The RF power amplifier module of claim 38, further comprising a substrate,
2 wherein the first and second integrated circuits are mounted to the substrate.

1 43. The RF power amplifier module of claim 38, further comprising a digital signal
2 processor formed using the second integrated circuit, wherein the digital signal processor
3 selects one or more ramp profiles to control the output power of the RF power amplifier
4 module.

1 44. The RF power amplifier module of claim 43, wherein ramp profiles are selected
2 using a power control signal received by the digital signal processor.

1 45. The RF power amplifier module of claim 44, further comprising a temperature
2 sensor, wherein ramp profiles are selected using the power control signal and sensed
3 temperature.

1 46. The RF power amplifier module of claim 44, further comprising a battery voltage
2 sensor, wherein ramp profiles are selected using the power control signal and sensed
3 voltage.

1 47. The RF power amplifier module of claim 38, further comprising a digital to
2 analog converter circuit formed on one of the integrated circuits for generating a power
3 control signal based on the stored ramp profiles.